

GOVERNOR’S GEOLOGIC HAZARDS WORKING GROUP DRAFT RECOMMENDATIONS – MAY 2007

The table below lists draft recommendations; the following texts give details of each recommendation.

<u>Adopting Ordinances</u>
1.1. Educate local governments on their “takings” liability in the development-approval process.
1.2. Encourage local governments to add a geologic-hazards element to their general plans and adopt and/or enforce appropriate geologic-hazards ordinances.
1.3. Develop a model geologic-hazards ordinance.
<u>Implementing Ordinances</u>
2.1. Update and improve existing generalized Wasatch Front geologic-hazards maps; provide outreach to cities not presently using available maps.
2.2. Determine the feasibility of adopting and enforcing grading codes in Utah.
2.3. Provide local governments with access to geologic and engineering expertise to review geologic-hazards reports prior to subdivision approval to adequately protect public safety.
2.4. Ensure that the standard of practice of engineering geology and geotechnical engineering in Utah advances.
2.5. Establish programs in engineering geology at major Utah universities.
<u>Enforcing Ordinances/Disclosure</u>
3.1. Improve enforcement of recommendations in approved site-specific geologic-hazards reports by transferring responsibility for on-site inspection and final sign-off to developer’s consultants.
3.2. Establish a Disclosure Working Group to determine a course of action, and pursue disclosure legislation if appropriate.
3.3. Establish an investigative procedure following significant, damaging geologic-hazard events to determine what happened, including the sequence of events, both natural and human, that led to the event.

GOVERNOR'S GEOLOGIC HAZARDS WORKING GROUP

DRAFT RECOMMENDATIONS – MAY 2007

ADOPTING ORDINANCES

Recommendation 1.1. Educate local governments on their “takings” liability in the development-approval process.

Goal - Allow elected, appointed, and staff local government officials to understand their “takings” liability when making land-use decisions.

Background

Issues related to potential infringement on private-property rights often arise when development is restricted or prohibited based on geologic hazards. Local government officials, particularly city councils and planning commissions, need to understand their authority when making permit-approval decisions related to geologic hazards and their potential for being required to provide “just compensation” for perceived “takings” or reduction in value of private property.

Implementation

Information related to private-property rights and results of court decisions related to “takings” litigation with respect to geologic hazards should be compiled and provided to elected and appointed local government officials and planning commissions, as well as planning-department and other city staff. Information could be collected and provided in brochures, websites, and/or training workshops. The ULCT provides training for local government officials, and advocates that this training be mandatory for officials that are considered land-use authorities, including city-council and planning-commission members. The ULCT could include “takings” issues related to geologic hazards in the training it provides, but because of the large number of individuals to be trained and high turn-over rates among these officials, broadly available methods such as web-based training are needed.

Responsible agencies

ULCT - training will be provided as part of ULCT training for local government officials. Information will be collected and distributed in workshops and at annual meetings, and posted on websites. Workshop materials can be made available to counties.

Utah Legislature - Legislation may be pursued to provide funding and incentives for the training of all appropriate local government officials.

State Property Rights Ombudsman – The Ombudsman’s office can also provide resources and is available for advice on specific issues as they arise.

Resources needed

Training materials will be developed and distributed, and workshops provided using existing resources of the ULCT and other sources; additional funding and incentives from the Legislature may be pursued.

Recommendation 1.2. Encourage local governments to add a geologic-hazards element to their general plans and adopt/enforce appropriate geologic-hazards ordinances.

Goal – Encourage local governments to understand their exposure to geologic hazards, evaluate their risk, and develop a plan to reduce the risk where necessary.

Background

The exposure to geologic hazards and resulting risk varies greatly among communities; some are subject to a wide variety of geologic hazards, whereas others are relatively free of geologic hazards, depending on their location and geology. As a result, the need to take steps to reduce losses varies. Many local governments in Utah do not understand their community's exposure to geologic hazards, and one mechanism to provide for this understanding is to include a geologic-hazards element in their general plan. Once local governments identify high-hazard areas in their communities, they can better understand their risk and take steps to reduce them by adopting and enforcing geologic-hazards ordinances.

Implementation

General geologic-hazards information that local governments can use to assess their community's vulnerability to geologic hazards is available in much of Utah, including most of the Wasatch Front. Local governments need technical and in some cases financial assistance to collect, understand, and use this information to determine their community's exposure and how best to reduce risks. Agencies providing resources and services should expand outreach efforts to inform local governments of their availability; local governments wishing to use the services should contact agencies for assistance, and/or contract with private-sector consultants for services.

Responsible agencies

ULCT, UAC, and APA - communicate the recommendation to local governments at annual meetings and other venues; provide technical assistance.

DHS - Pre-Disaster Mitigation (PDM), Natural Hazard Mitigation plans provide general information. Based on Congressional funding, PDM grants are made available annually from FEMA.

GOPB – technical assistance and grants may be available from GOPB with oversight from the Quality Growth Commission for Critical Lands plans and other general planning needs, depending on funding from the Legislature; GOPB can develop a central website with links to all available information sources.

UGS – provide technical information and assistance, and develop model ordinance (see Recommendation 1.3).

Resources needed

The extent of resources will depend on the number of local governments that implement the recommendation.

ULCT, UAC – Enter into partnerships with cities and counties to assist using member contributions.

APA – Existing education outreach funds from the membership can be used to inform planners and provide technical assistance.

DHS – Federal funding, supported by state and local match, are used to develop PDM plans.

GOBP – If funding from the Legislature continues, existing grant programs can be used for this planning, but additional funds will be required as the demand increases. No funding was approved for grants in fiscal year 2007-2008. With a small amount of additional funding for technical assistance, existing staff can develop a central website with links to all available resources.

UGS – Existing staff is handling present workload, but an expanded outreach and assistance program would require at least 1/2 additional FTE (\$33,000/year). If many local governments request UGS assistance, additional staff will be required.

Recommendation 1.3. Develop a model geologic-hazards ordinance.

Goal - Provide a model geologic-hazards ordinance for use by local governments when updating existing ordinances or adopting new ones.

Background

Local governments typically address geologic hazards in Sensitive-Area, Geologic-Hazards, Subdivision, or Natural-Hazards ordinances. Much has been learned recently in Utah and elsewhere about effective ordinances, and these lessons must be captured in a model ordinance and made available for use by all local governments.

Implementation

Several cities and counties are presently updating ordinances. Most recently, Morgan County and Draper City are developing and implementing ordinances that incorporate recent lessons learned in Utah and other states. These and other recently prepared ordinances in Utah and elsewhere can serve as a basis for developing a model ordinance. In some recent ordinance reviews, a need has arisen to define minimum standards of geologic and engineering practice in the ordinance. Once developed, the model ordinance will be distributed to the APA Utah Chapter and ULCT for review, and then sent to appropriate outside parties for public review and comment. Then the model ordinance will be made available on the central GOPB website as well as the UGS, APA, ULCT, and UAC websites.

Responsible agencies

UGS, in cooperation with appropriate local governments.

Resources needed

No additional resources needed.

IMPLEMENTING ORDINANCES

Recommendation 2.1. Update and improve existing generalized Wasatch Front geologic-hazards maps; provide outreach to cities not presently using available maps.

Goal - Ensure that modern, up-to-date geologic-hazards maps are available to local governments, and that all local governments are aware of the available information for use in ordinances.

Background

Geologic hazards maps used in land-use regulation must be scientifically based on the best available data, and incorporate the latest scientific principles and information. Such generalized 1:24,000-scale geologic-hazards maps are available for most of the Wasatch Front and some other urban areas in Utah, prepared by the UGS and geologists in the UGS-sponsored Wasatch Front County Hazards Geologist Program. However, many of the Wasatch Front maps were compiled in the late 1980s, and new information and technology is now available to update the maps. Also, not all local governments use the available maps in geologic-hazards ordinances. Local governments within the mapped areas should be made aware of their availability and trained in their use.

Implementation

The UGS should set up a procedure and schedule for updating and improving maps using new data, and preparing new maps in areas not yet mapped. The UGS is presently compiling existing maps for the Wasatch Front into a GIS map database using funding from DHS, so updates can be completed and made available electronically. Local government planning, engineering, and/or GIS departments will then replace older maps in their systems with these updated maps. Maps need to be made accessible on local government, UGS, and other websites as appropriate.

Responsible agencies

UGS

Local Governments

Resources needed

UGS – Existing staff presently completes a new set of geologic-hazards maps for one area every several years, and requires partial funding from local governments. Existing maps in the Wasatch Front area are presently being compiled into a uniform digital map database to be made widely available. To begin a systematic update of all existing maps and to accelerate mapping in new areas, at least one additional Geologist and GIS Analyst are needed. Total cost - \$120,000/year (1 Geologist, 1 GIS Analyst).

Recommendation 2.2. Determine the feasibility of adopting and enforcing grading codes in Utah.

Goal - Implement proven practices in mass grading as a pilot project to determine their effectiveness in planning, control, and inspection in a Utah project.

Background

Grading codes have been tremendously successful in reducing losses from ground settlement and landslides in mass-grading projects in southern California and elsewhere, where much experience has been gained in administering these codes. In Utah, only Salt Lake County enforces a grading code and employs a grading inspector. Now that mass-grading projects are being proposed and implemented in Utah, including in areas where landslide-risk reduction is a major goal, a need exists to evaluate the feasibility of using grading codes in subdivision development, and to develop a process to adequately administer such codes, if feasible.

Implementation

Identify a city (or cities) with a proposed mass-grading project in landslide terrain to perform a pilot project to determine the feasibility of adopting and enforcing grading codes and develop methods to implement and administer them. Administration of grading codes typically involves requiring developers to provide on-site supervision (inspection, testing, monitoring) by geotechnical professionals during construction, with periodic reporting to local government inspectors. Involvement of professionals experienced in administering such codes in Salt Lake County and elsewhere, such as California, would be of great value in a pilot project. Large-scale development proposals that could be pilot projects are presently being considered in Draper and Layton.

Responsible agencies

City (or cities) where pilot project(s) is undertaken

Developer(s) and their consultants undertaking the mass-grading project

UGS – technical advice and assistance to local government

Resources needed

City (or cities) - Costs for staff time will be incurred by the city(s) to administer and enforce the grading code; additional funding sources may be needed for training and technical assistance to implement the process.

Developers - Costs for their consultants to prepare grading plans, inspect and report to local government inspectors, and provide final as-built documentation will be incurred as a business expense when using mass-grading techniques.

Recommendation 2.3. Provide local governments with access to geologic and engineering expertise to review geologic-hazards reports prior to subdivision approval to adequately protect public safety.

Goal - Provide local governments with access to geologic and engineering expertise to review predevelopment geologic-hazards reports to assist in implementing geologic-hazards ordinances.

Background

To effectively implement geologic-hazards ordinances, local governments need access to geologic-hazards expertise. Geologists and engineers working on behalf of a local government are needed to advise local officials regarding the community's risk from geologic hazards, review site-specific reports, and work with local officials, planning commissions, and developers and their consultants to ensure safe development.

Implementation

Various options are available to provide this expertise, including hiring professionals on staff, contracting with private-sector consultants, using the UGS, and/or cooperating in a circuit-rider program where geologists and engineers are shared with other communities (perhaps housed at the UGS or Association of Governments office). For certain specific needs, such as report reviews for high-hazard sites, high-level technical panels may be used. The 1985-1988 federally funded, UGS-sponsored Wasatch Front County Hazards Geologist Program that placed geologists in county governments to provide these services, both to cities within each county and the unincorporated county, was not continued once federal funding expired, principally due to city and county funding issues and perceived work loads. However, the County Geologist Program demonstrated the value to a local government of having ready access to geologic expertise. Presently, local governments either use private-sector geologists or the UGS to provide reviews, or do not perform reviews. Some local governments charge developers directly for reviews; others use either State (UGS) or other resources to provide reviews. Funding of reviews through fees or other sources may be required.

Responsible agencies

Responsible agencies will depend on the approach taken to provide services, and include:

Local Governments

UGS

Private geotechnical consultants

Possibly Associations of Governments (for circuit-rider programs)

Resources needed

Local governments - Procedures are needed to fund report reviews by in-house staff or contracted consultants or circuit-riders, or to use UGS state-funded resources.

UGS – If UGS expands its report-review program, additional funding for at least one licensed Project Geologist (\$75,000/yr) would be required initially. The UGS presently provides this service free of charge, but costs could be recovered by review fees if UGS

charged local governments for the service. Additional UGS staff may be needed as workload increases.

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Recommendation 2.4. Ensure that the standard of practice of engineering geology and geotechnical engineering in Utah advances.

Goal - Ensure that the technical and ethical standard of practice advances through education, experience, training, and professional development.

Background

Geologic-hazard evaluations, particularly paleoseismic and landslide stability analyses, require specialized expertise not commonly obtained in university degree programs. The knowledge base and standard of practice for such investigations is rapidly advancing, and consultants and reviewers must keep up-to-date with these advances. Recent damage caused by movement of landslides that were determined by geologic and engineering consultants to be sufficiently stable for development has highlighted the need for the standard of practice in Utah to advance, particularly with respect to landslide-stability evaluations. High-level-expert geologists and engineers from California, Oregon, and Colorado that have worked in Utah have similarly indicated a need to improve the standard of practice here, particularly with respect to landslide evaluations. In general, professional licensing is not as effective as it could be in improving the standard of practice, and other methods are needed as well.

Implementation

Local government ordinances should specify minimum qualifications for geologists and engineers, particular with respect to specialty education and experience in engineering geology and geotechnical engineering. The UGS, Association of Environmental and Engineering Geologists (AEG) Intermountain Section, and American Society of Civil Engineers (ASCE) Utah Geotechnical Group should approach the Utah Division of Occupational and Professional Licensing (DOPL) and the Geology and Engineering Licensing Boards concerning ways to improve the effectiveness of licensing and DOPL in advancing standards of practice. The UGS and AEG Intermountain Section should approach DOPL and the Geology Licensing Board regarding instituting a continuing education requirement for Professional Geologists and/or a specialty certification in engineering geology. The UGS should maintain and expand its programs of technical publications, presentations, and field trips to make geologic hazard research results more available.

Responsible agencies

UGS

Professional organizations (AEG, ASCE)

DOPL

Resources needed

UGS – to expand outreach programs and sponsor training, UGS would require an additional ½ FTE (\$33,000/year); UGS can also redirect existing technical staff to target research to answer critical questions needed to improve the standard of practice.

Recommendation 2.5. Establish programs in engineering geology at major Utah universities.

Goal - Provide educated engineering geologists so that Utah consultants can hire local well-qualified staff.

Background

Although most major Utah universities maintain geotechnical-engineering programs that offer graduate degrees, no Utah universities provide graduate programs in engineering geology with specialized training in paleoseismology, slope stability, engineering geology, Quaternary geology, and geomorphology. This specialized training is needed to prepare geologists for work in consulting companies performing engineering-geologic and geologic-hazards investigations. As a result, companies often must hire geologists without an engineering-geology specialty and train them on-the-job. Close mentoring by an experienced engineering geologist is a critical part of this training.

Implementation

The need for engineering-geology education and potential for employment must be communicated to Utah universities so that they can evaluate whether the need is adequate to establish an engineering geology program. The UGS and Geology Licensing Boards should meet with geology-department heads of major Utah universities to discuss the need and encourage them to provide such education. A “cooperative education” program with local employers may be a possible means of encouraging properly educated engineering geologists to join local consulting companies.

Responsible agencies

UGS

Utah universities (USU, UU, BYU)

Legislature (funding)

Resources needed

Cost estimates to hire faculty and initiate programs will need to be provided by universities.

ENFORCING ORDINANCES/DISCLOSURE

Recommendation 3.1. Improve enforcement of recommendations in approved site-specific geologic-hazards reports by transferring responsibility for on-site inspection and final sign-off to developer's consultants.

Goal - Ensure that final recommendations in site-specific reports are implemented by developers and contractors.

Background

Enforcement has been a weakness in final implementation of geologic-hazard ordinances. Adequate funding for code enforcement officers is generally lacking, and most building officials are not technically qualified to perform geologic-hazard inspections, particularly for excavation and grading. However, enforcement is an important and final step in protecting private property, infrastructure, and public safety.

Implementation

Geologic-hazards reports by developer's consultants commonly recommend that they observe conditions during development to ensure that their investigation adequately characterized conditions and that their recommendations are followed. This is an important step which protects all parties involved. It protects the consultant by ensuring their recommendations are followed and unanticipated conditions are recognized, and prevents them from being unfairly held responsible if problems arise because their specifications were not met by contractors. It protects the developer by providing for accountability on the part of their contractors and consultants, and protects local governments by ensuring qualified professionals are performing inspections on site. The final sign-off and documentation by the developer's consultants helps ensure safe development and provides a record of accountability and liability if problems arise.

Responsible agencies

Local governments
Developers and their consultants

Resources needed

Costs for inspection and final sign-off are a developer's business expense. Additional costs incurred by local governments for administration and monitoring of inspections should not be unwieldy, but if so, will require additional funding sources.

Recommendation 3.2. Establish a Disclosure Working Group to determine a course of action, and pursue disclosure legislation if appropriate.

Goal – Provide adequate information to home buyers regarding risks from geologic hazards when purchasing a home.

Background

Buying a home is probably the greatest investment most families make in a lifetime. In making a decision on purchasing a home, they need accurate information. A commonly overlooked concern is geologic hazards because most homebuyers are unaware of geologic hazards and falsely assume that government would not allow homes to be built in hazardous areas. Homebuyers need to know the risks they are incurring.

Disclosure can be implemented at either the state or local government level. Uniformity statewide is desirable, and would require legislation. Accurate maps showing geologic hazards are useful to inform sellers, real-estate agents, and local governments of potential hazards, but aren't available everywhere. Thus, disclosure requirements may need to vary depending on the availability of information.

Implementation

Disclosure is a complex process involving many stakeholders, including local governments (Recorders), lenders, real-estate agents (including the Utah Association of Realtors), state agencies (e.g., Utah Division of Real Estate), and title companies. A Disclosure Working Group or Task Force should be established to study the issues and develop recommendations. The UGS will get the process started by contacting the Utah Division of Real Estate to attempt to establish a Working Group or Task Force to study the issue.

Responsible agencies

Utah Division of Real Estate

Local governments

Utah League of Cities and Towns

Utah Geological Survey (to provide hazard information)

Utah Seismic Safety Commission (see Strategy 1.3 of "*A Strategic Plan for Earthquake Safety in Utah*" by the USSC)

Resources needed

Establishment of the Disclosure Working Group or Task Force can be done with available resources. One task of the group will be to define resources needed to implement their recommendations.

Recommendation 3.3. Establish an investigative procedure following significant, damaging geologic-hazard events to determine what happened, including the sequence of events, both natural and human, that led to the event.

Goal – Improve the standard of practice and land-use-regulation process by determining why and where the process failed following damaging events.

Background

Failures of engineered structures, particularly those that result in significant damages and injuries or death, typically generate an investigation to determine the cause (e.g., National Transportation Safety Board investigations of airline and train accidents, structural-engineering reviews of building failures, dam-safety reviews of dam failures). Such investigations are extremely valuable from a public-safety standpoint. They are very detailed and often costly, and are performed by independent, objective professionals who typically determine the causes and give recommendations to prevent recurrence.

Investigations of geologic-hazard events that cause damages, at a level of detail appropriate to the severity of damages, would be valuable to identify where the land-use-regulation process failed and can be improved, and also to provide information that affected parties can use in considering actions to recover losses.

Implementation

The State Hazard Mitigation Team (SHMT), coordinated through DHS, presently investigates hazard events to advise local governments in emergency response and mitigation strategies to lessen the impact of future hazard events. For damaging landslides, the UGS typically prepares summary reports based on its emergency investigations. The SHMT member agencies, principally the UGS with regard to landslides and earthquakes, could perform additional investigations as needed to evaluate possible causes and identify where the regulatory process failed. For particularly damaging events, an expert panel or other entity could be brought in to perform such investigations. The best method to perform such studies may need to be decided on a case-by-case basis, although in general extensive and costly government-funded investigations are not proposed.

This information can be used as a basis for local governments to evaluate weaknesses in their regulations and improve procedures and policies, and for affected parties to consider professional licensee or legal actions. Ultimate liability and appropriate legal action would be determined by DOPL and State Licensing Boards or the courts based on complaints filed or litigation that would require detailed investigations. In conjunction, an appropriate consumer-protection agency could establish a program to use these reports to file complaints with DOPL when damages occur in subdivisions where studies have been completed and found to be inaccurate.

Responsible agencies

DHS SHMT members

Utah Geological Survey
Consumer protection agency

Resources needed

Costs for investigations may vary greatly depending on the amount of damages, complexity of issues, extent and availability of existing reports, and persons performing investigations. Costs for standard SHMT-type investigations could be covered by existing agency budgets, but costs for outside experts and panels for particularly damaging or politically sensitive events could be considerable.

Consumer-protection agency – This may fall under the mission of the appropriate agency and not require additional resources. If a large number of events requiring action occur, additional one-time funding may be needed.